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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,764	02/07/2002	Koon Ha Park	LNK-0005	1624

7590

05/04/2005

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EXAMINER

KUGEL, TIMOTHY J

ART UNIT PAPER NUMBER

1712

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,764

Applicant(s)

PARK ET AL.

Examiner

Timothy J. Kugel

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 1-13 are pending as filed on 7 February 2002.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

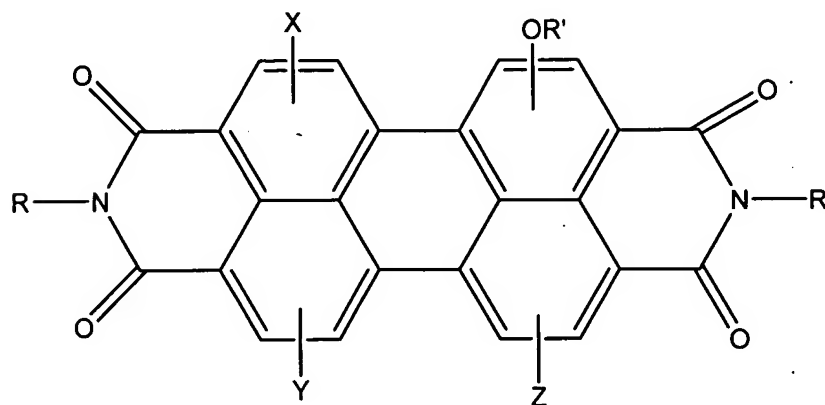
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,122,306 (Van Moer et al.) as evidenced by U.S. Patent 3,775,336 (Bollyky) in view of U.S. Patent 4,845,223 (Seybold et al.). Van Moer et al. teach a chemiluminescent composition comprising a solvent—including dibutyl phthalate—(Column 3 Lines 46-51), an oxalate—including bis(2,4,5-trichloro-6-carbopentoxylphenyl) oxalate—(Column 3 Lines 52-62); a peroxide—including hydrogen peroxide as exemplified by applicant—dissolved in a mixture of dimethyl phthalate and t-butanol at a concentration of 0.01-0.1 M (Column 3 Line 67 – Column 4 Line 2 and Column 4 Lines 25-29 as evidenced by U.S. Patent 3,775,336 Column 2 Lines 60-61), a salicylate catalyst at on the order of 0.002% of the peroxide solution

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(Column 4 Lines 25-29) and a perylene compound represented by the formula



wherein each R can be a

straight chain alkyl group of at least 2 carbon atoms; X, Y, and Z can each be OR' and R' can be a substituted phenyl group (Column 2 Lines 5-39). Van Moer et al. do not disclose expressly a perylene as above wherein R is a straight chain alkyl of C₁₂-C₂₀, nor wherein the substituted groups on the phenyl rings are t-butyl groups.

Seybold et al. discloses a fluorescent perylene compound represented by the same formula wherein each R can be aliphatic radicals of C₁-C₁₈ straight chain alkyls; X, Y, and Z can each be OR' and R' can be a 4-t-butyl substituted phenyl group (Column 1 Line 40 – Column 6 Line 37).

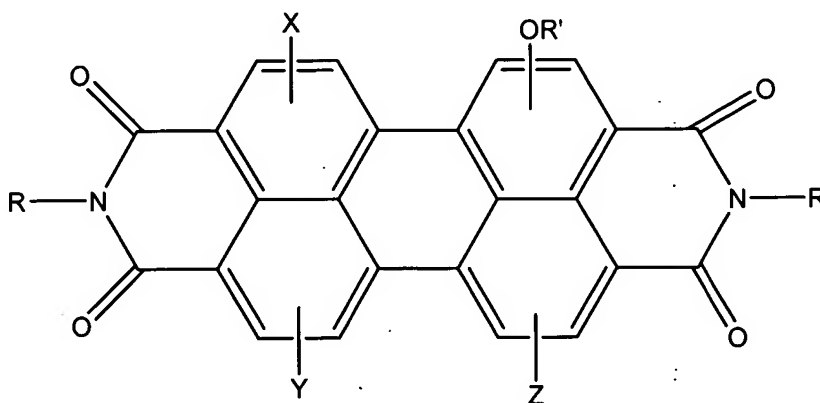
At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the perylene compound of Seybold et al. with the chemiluminescent composition of Moer et al. The motivation to do so would have been its ready solubility in organic solvents (Seybold et al. Column 7 Lines 35-37).

5. Claims 1-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,751,616 (Smithey) in view of Seybold et al. Smithey teaches a chemiluminescent composition comprising a solvent—including dibutyl phthalate—

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(Examples I-III, Column 5 Line 32 – Column 7 Line 15), an oxalate—including bis(2,4,5-trichloro-6-carbopentoxylphenyl) oxalate—(Column 3 Lines 33-50); a peroxide dissolved in dimethyl phthalate at a concentration of 1.60 to 2.0% based on the activator (Column 2 Line 67 – Column 3 Line 9), a salicylate catalyst at 0.006 to 0.01 % of the peroxide solution (Column 2 Lines 1-4 and Column 2 Line 67 – Column 3 Line 9) and a fluorescer. Smithey does not disclose expressly a fluorescer as described in the instant claims.

Seybold et al. discloses a fluorescent perylene compound represented by the



formula

wherein each R can

be aliphatic radicals of C₁-C₁₈ straight chain alkyls; X, Y, and Z can each be OR' and R' can be a 4-t-butyl substituted phenyl group (Column 1 Line 40 – Column 6 Line 37).

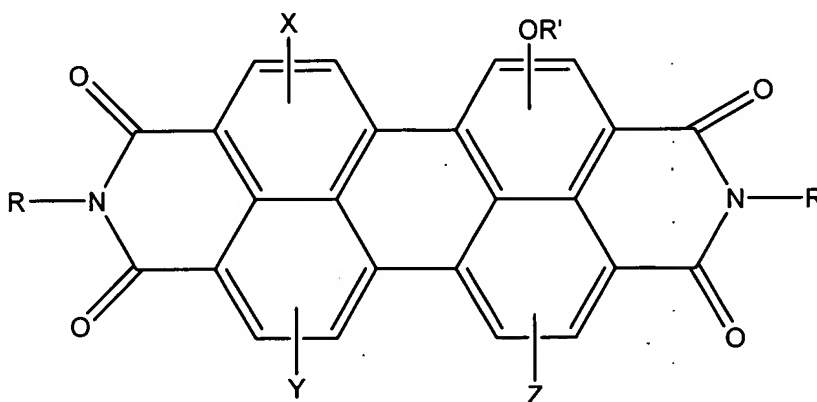
At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the perylene compound of Seybold et al. with the chemiluminescent composition of Smithey. The motivation to do so would have been its ready solubility in organic solvents (Seybold et al. Column 7 Lines 35-37).

6. Claims 1-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,597,517 (Chopdekar et al. '517) in view of Seybold et al. Chopdekar et al.

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'517 teaches a chemiluminescent composition comprising a solvent—including dibutyl phthalate and dimethyl phthalate—(Column 1 Lines 41-52), an oxalate—including bis(2,4,5-trichloro-6-carbopentoxylphenyl) oxalate—(Column 3 Lines 39-60); a peroxide dissolved in t-butanol at a concentration of 0.005 to 3.0 M (Column 4 Lines 19-29), a salicylate catalyst at 1×10^{-6} to 1×10^{-1} M (Column 4 Lines 31-55) and a perylene fluorescer present in concentrations of 0.001 to 0.03 M (Column 4 Line 65 – Column 5 Line 34). Chopdekar et al. '517 does not disclose expressly a perylene fluorescer as described in the instant claims.

Seybold et al. discloses a fluorescent perylene compound represented by the



formula

wherein each R can

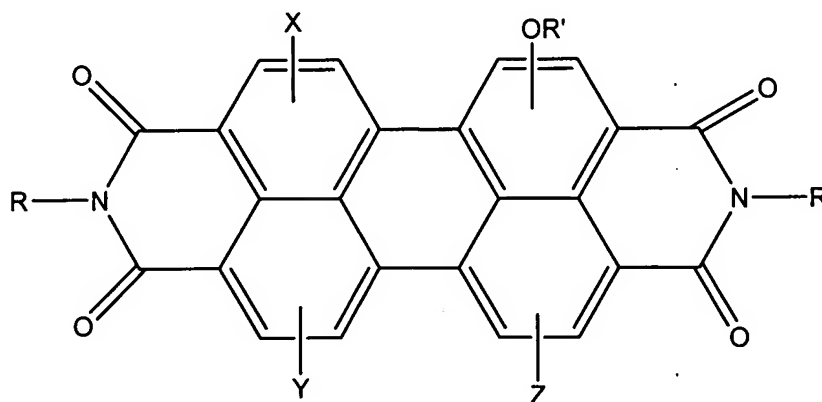
be aliphatic radicals of C₁-C₁₈ straight chain alkyls; X, Y, and Z can each be OR' and R' can be a 4-t-butyl substituted phenyl group (Column 1 Line 40 – Column 6 Line 37).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the perylene compound of Seybold et al. with the chemiluminescent composition of Chopdekar et al. '517. The motivation to do so would have been its ready solubility in organic solvents (Seybold et al. Column 7 Lines 35-37).

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7. Claims 1-4, 6-9 and 11-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,705,103 (Chopdekar et al. '103) in view of Seybold et al. Chopdekar et al. '103 teaches a chemiluminescent composition comprising a solvent (Column 1 Lines 24-27), an oxalate—including bis(2,4,5-trichloro-6-carbopentoxylphenyl) oxalate—(Column 2 Lines 25-41); a peroxide—including hydrogen peroxide as exemplified by applicant—at a concentration of 10^{-5} to 15 M (Column 2 Line 66 – Column 3 Line 5), a salicylate catalyst at 1×10^{-6} to 1×10^{-1} M (Column 3 Lines 6-27) and a perylene fluorescer present in concentrations of 10^{-5} to 5 M (Column 3 Lines 28-63). Chopdekar et al. '103 does not disclose expressly a perylene fluorescer as described in the instant claims.

Seybold et al. discloses a fluorescent perylene compound represented by the



formula

wherein each R can

be aliphatic radicals of C_1 - C_{18} straight chain alkyls; X, Y, and Z can each be OR' and R' can be a 4-t-butyl substituted phenyl group (Column 1 Line 40 – Column 6 Line 37).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the perylene compound of Seybold et al. with the

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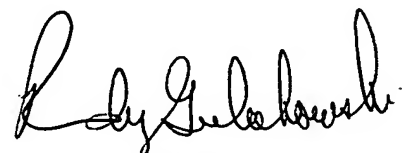
chemiluminescent composition of Chopdekar et al. '103. The motivation to do so would have been its ready solubility in organic solvents (Seybold et al. Column 7 Lines 35-37).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached on 6:30 AM - 3:30 PM Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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TECHNOLOGY CENTER 1700